



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Science Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396
(808)983-5300 • Fax: (808)983-2902

December 28, 2001 F/SWC2:MD:FLF
CR0111-1.MD

CRUISE REPORT

VESSEL: *Townsend Cromwell*, Cruise TC-01-11 (TC-274)

CRUISE PERIOD: 22 October-20 November 2001

AREA OF OPERATION: Northwestern Hawaiian Islands (Fig. 1)

TYPE OF OPERATION: Personnel from the Southwest Fisheries Science Center (SWFSC) Honolulu Laboratory (HL), National Marine Fisheries Service (NMFS), NOAA along with cooperators from federal, state, and non-government organizations surveyed and removed marine debris from the critical habitat of the Hawaiian monk seal. Survey and removal efforts were conducted in waters and on beaches at Laysan and Lisianski Islands, Pearl and Hermes, Kure Atolls, and French Frigate Shoals.

ITINERARY:

22 October Mary Donohue, Raymond Boland, Cindy Thomas, Ron Hoeke, Spencer Frary, Erin McCarthy, Dean Uyeno, and Robert Marshall embarked the ship and departed Honolulu at 1000.

24 October Arrived Necker Island and recovered two dive temperature recorders from benthic habitat. Replaced Dive Temperature recorders with new instruments. Conducted CTDs at Necker Island and French Frigate Shoals CTD stations. Conducted Questar Tangent Corporation (QTC) acoustic seabed mapping of benthic habitat near Necker Island.

25 October Conducted CTDs at Gardner Pinnacles, Maro Reef, and Laysan Island CTD stations.

26 October Conducted CTD at Lisianski Island CTD station.

27 October Arrived Lisianski Island. Began surveys of near shore waters for derelict nets and line. Conducted QTC acoustic seabed mapping of benthic



habitat near Lisianski Island. Conducted video assessment of benthic habitat at Lisianski Island to calibrate QTC acoustic seabed mapping with the Towed Optical Acoustic Device (TOAD).

- 28 October Snorkel and SCUBA divers conducted marine debris surveys and removal of debris from near shore waters and beaches of Lisianski Island. Conducted QTC acoustic seabed mapping and TOAD video calibration during non-daylight hours near Lisianski Island.
- 29 October Snorkel and SCUBA divers conducted marine debris surveys and removal of debris from near shore waters and beaches of Lisianski Island. Departed Lisianski Island for Pearl and Hermes Atoll.
- 30 October Arrived Pearl and Hermes Atoll. Began surveys of near shore waters for derelict nets and line. Embarked Stephanie Holzworth from F/V *Katmai*. Conducted CTD at Pearl and Hermes Atoll CTD station.
- 31 October Snorkel divers conducted marine debris surveys and removal of debris from near shore waters and beaches of Pearl and Hermes Atoll. Departed Pearl and Hermes Atoll on 31 October for Kure Atoll.
- 1 November Arrived Kure Atoll. Snorkeled and began surveys of near shore waters and beaches for derelict nets and line.
- 2 November Snorkel divers conducted marine debris surveys and removal of debris from near shore waters and beaches of Kure Atoll. Departed Kure Atoll for Midway Atoll. Conducted CTD at Kure Atoll CTD station.
- 3 November Arrived Midway Atoll. Conducted CTD at Midway Atoll CTD station.
- 4 November Departed Midway Atoll for Laysan Island. Conducted QTC acoustic seabed mapping near Midway Island.
- 5 November Disembarked Holzworth to F/V *Katmai* at Pearl and Hermes Atoll. Conducted QTC acoustic seabed mapping near a bank north of Lisianski Island.
- 6 November Conducted QTC acoustic seabed mapping and TOAD video calibration near Lisianski Island.

7 November Conducted QTC acoustic seabed mapping and TOAD video calibration near Pioneer Bank.

8 November Conducted QTC acoustic seabed mapping near Pioneer Bank.

9 November Arrived Laysan Island. Marine debris removed from Laysan Island beaches. CTD conducted at Laysan Island CTD station. Departed Laysan Island for French Frigate Shoals.

11 November CTD conducted at Gardner Pinnacles CTD station. Arrived French Frigate Shoals at 2200. Conducted QTC acoustic seabed mapping near French Frigate Shoals.

12 November Marine debris collected previously at French Frigate Shoals was removed from Tern Island. Conducted QTC acoustic seabed mapping and TOAD video calibration near French Frigate Shoals.

13 November Snorkel and SCUBA divers began marine debris surveys and removal of debris from near shore waters of French Frigate Shoals. Conducted QTC acoustic seabed mapping near Brooks Bank.

14 November Snorkel and SCUBA divers conducted marine debris surveys and removal of debris from near shore waters and beaches of French Frigate Shoals. Conducted QTC acoustic seabed mapping and TOAD video calibration near French Frigate Shoals.

16 November Snorkel and SCUBA divers conducted marine debris surveys and removal of debris from near shore waters and beaches of French Frigate Shoals.

16 November Snorkel and SCUBA divers conducted marine debris surveys and removal of debris from near shore waters and beaches of French Frigate Shoals. Departed French Frigate Shoals for Honolulu.

18 November Conducted CTD at Nihoa CTD station.

20 November Arrived Honolulu 0800. All personnel disembarked.

MISSIONS AND RESULTS:

- A. Diver surveys and debris removal from high entanglement risk zones (HERZ) in near shore waters of (1) Pearl and Hermes Atoll, (2) Kure Atoll, (3) Lisianski Island, and (4) French Frigate Shoals were conducted.

1. A HERZ represented by 1.00 km² of sea surface area established in 1999 at the northern end of North Islet at Pearl and Hermes Atoll was resurveyed and cleaned. Surveys at North Islet were conducted by two snorkel divers towed behind a small boat concurrently. All transects and debris items were documented using Global Positioning Systems. A total of 660 kg of derelict nets and line were located and removed from the waters of Pearl and Hermes Reef.
 2. A HERZ represented by 1.42 km² of sea surface area was established in 2000 at the northern end of Green Islet at Kure Atoll. The area was surveyed and cleaned of marine debris. All transects and debris items were documented using Global Positioning Systems. Surveys at Kure Atoll were conducted by two snorkel divers towed behind a small boat concurrently. A total of 440 kg of derelict nets and line were located and removed from the waters of Kure Atoll.
 3. A HERZ, represented by 1.17 km² of sea surface area established in 1999 at the northern end of Lisianski Island. A portion of this zone, approximately 0.39 km², was resurveyed and cleaned during the TC-0012. Surveys were conducted by two snorkel divers towed behind a small boat concurrently. All transects and debris items were documented using Global Positioning Systems. A total of 80 kg of derelict nets and line were located and removed from the waters of Lisianski Island.
 4. A HERZ, represented by 5.67 km² of sea surface area was established in 1996 at French Frigate Shoals. A portion of this zone, 1.0 km², was resurveyed and cleaned during the TC-0012. Surveys were conducted by two snorkel divers towed behind a small boat concurrently. All transects and debris items were documented using Global Positioning Systems. A total of 4400 kg of derelict nets and line were located and removed from the waters of Lisianski Island.
- B. Removal of debris collected on the beaches of Pearl and Hermes, Kure Atolls, French Frigate Shoals and Lisianski and Laysan Islands was conducted.
1. A total of 900 kg of derelict nets and line were recovered from the beaches of Pearl and Hermes Atoll by personnel supported by small boats.

2. A total of 350 kg of derelict nets and line were recovered from the beaches of Kure Atoll by personnel supported by small boats.
 3. A total of 1,225 kg of derelict nets and line previously recovered from the coral reefs and beaches of French Frigate Shoals by The USNMFS and USFWS were removed from Tern Island at French Frigate Shoals by personnel supported by small boats.
 4. A total of 750 kg of derelict nets and line were recovered from the beaches of Lisianski Island by personnel supported by small boats.
 5. A total of 1,075 kg of derelict nets and line were recovered from the beaches of Laysan Island by personnel supported by small boats.
- C. Conductivity-temperature-depth (CTD) instrument deployed and recovered at fixed stations within the Northwestern Hawaiian Islands.

CTD casts were successfully completed at the following eight predetermined stations in the Northwestern Hawaiian Islands:

Station #	Latitude	Longitude	Location Description
CTD #1	22 32.000 N	162 00.000 W	South of Nihoa Island
CTD #2	23 11.099 N	164 42.562 W	South of Necker Island
CTD #3	22 34.000 N	166 18.000 W	South of Tern Island
CTD #4	24 08.000 N	167 40.000 W	SE of Gardner Pinnacles
CTD #5	25 00.000 N	170 00.000 W	SE of Maro Reef
CTD #6	25 34.000 N	171 32.000 W	South of Laysan Island
CTD #7	25 50.000 N	173 40.000 W	South of Lisianski Island
CTD #8	27 40.000 N	175 49.700 W	S. of Pearl & Hermes Reef
CTD #9	28 06.001 N	177 21.300 W	South of Midway Atoll
CTD #10	28 12.500 N	178 19.897 W	South of Kure Atoll

These data will be incorporated into a time series analysis of data to elucidate long-term trends in the oceanographic parameters in the habitat of Hawaiian monk seals.

- D. Questar Tangent Corporation Acoustic Seabed Mapping System apparatus was deployed to acoustically map benthic habitats at the following locations:
- E. General Observations and miscellaneous activities.

Southwest Fisheries Science Center (SWFSC), Honolulu Laboratory (HL) equipment was transported between Lisianski Island and Honolulu.


**SCIENTIFIC
PERSONNEL:**

Mary Donohue, Chief Scientist, National Marine Fisheries Service
NMFS), Southwest Fisheries Science Center (SWFSC), Honolulu
Laboratory (HL)
Ray Boland, Research Biologist National Marine Fisheries Service
NMFS), Southwest Fisheries Science Center (SWFSC), Honolulu
Laboratory (HL)
Dean Uyeno, Cooperating Scientist, State of Hawaii Department of
Land and Natural Resources, Aquatic Resources Division
Spencer Frary, Volunteer, NMFS
Erin McCarthy, Volunteer, NMFS
Stephanie Holzworth, Cooperating Scientist, Joint Institute of
Marine and Atmospheric Research (JIMAR), University of
Hawaii (UH)
Ron Hoeke, Cooperating Scientist, Joint Institute of Marine and
Atmospheric Research (JIMAR), University of Hawaii (UH)
Robert Marshall, Cooperating Scientist, Joint Institute of Marine
and Atmospheric Research (JIMAR), University of Hawaii (UH)
Cindy Thomas, Cooperating Scientist, Center for Marine
Conservation (CMC)

Submitted by:


Mary Donohue
Chief Scientist

Approved by:


R. Michael Laurs
Director, Honolulu Laboratory

Attachment

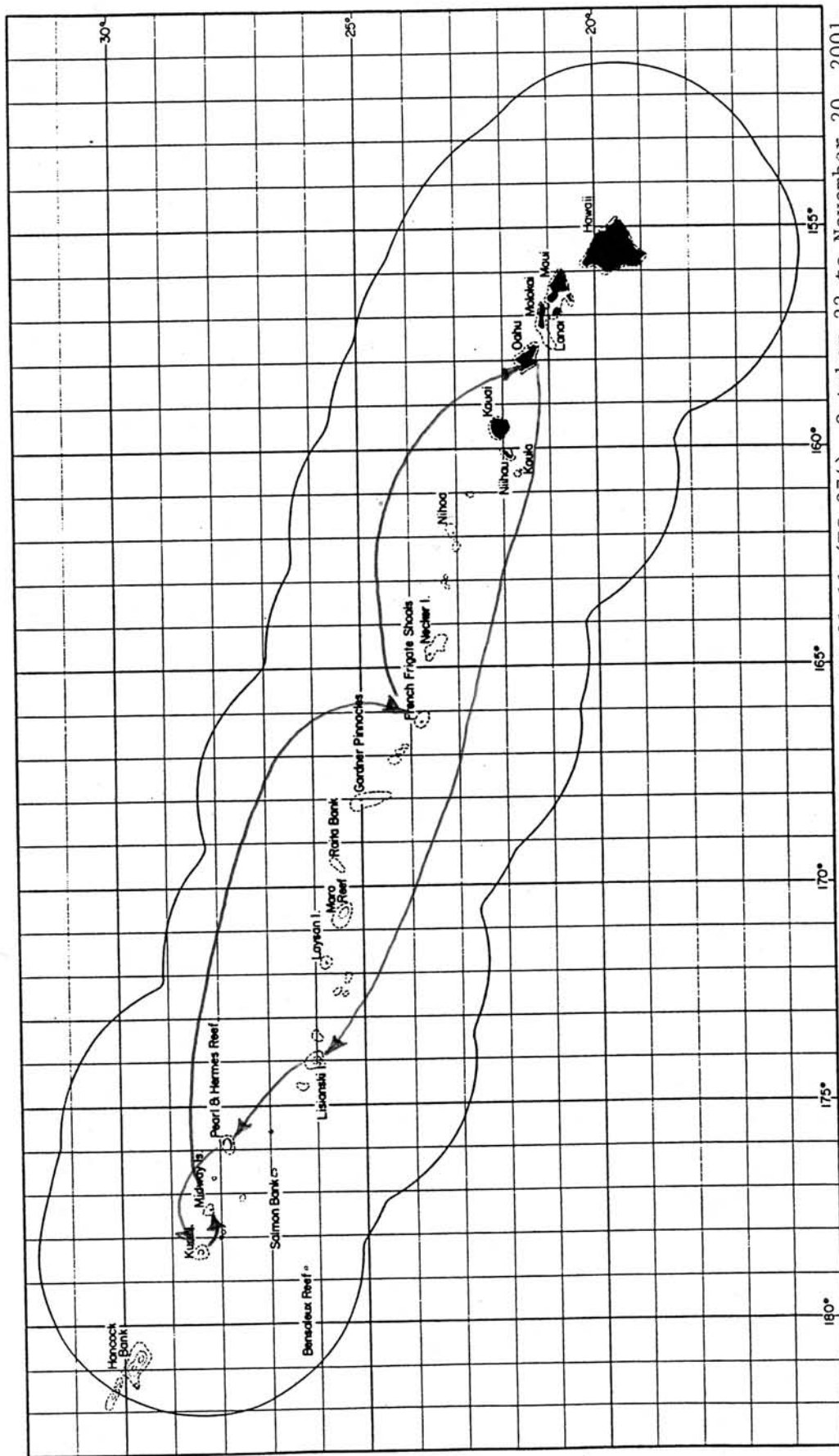


Figure 1.--Track of the NOAA ship Townsend Cromwell cruise TC-01-11 (TC-274), October 22 to November 20, 2001.